

CLAIMS

1 A semiconductor component suitable for limiting transient voltages on the supply
lines of a system having at least three supply lines, one of the supply lines being a current
5 sink, the semiconductor comprising:

at least three input means for connection to respective ones of the supply lines;

and for each input means, a respective overvoltage-triggered semiconductor protection
10 unit;

wherein:

each protection unit comprises a multi-junction diode which has a threshold voltage at
15 which it changes from a high-impedance state to a low-impedance state and a respective
further diode connected in shunt with the multi-junction diode and in the opposite sense
to the multi-junction diode;

each multi-junction diode is connected in the same sense between a respective input
20 means and a common terminal;

and each protection unit is adapted to use a lateral turn on current.

2 A semiconductor component as claimed in claim 1 wherein a shielding diffusion
25 is provided between adjacent protection units for blocking lateral current flow between
said adjacent protection units.

3 A semiconductor component as claimed in claim 2 wherein said shielding
diffusion does not extend around the whole periphery of each protection unit.

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4 A semiconductor component as claimed in claim 2 wherein said shielding
diffusion extends at least partway into the semiconductor component.

5 A semiconductor component as claimed in claim 2 wherein said shielding diffusion extends the full depth of the semiconductor component.

5 6 A semiconductor component as claimed in claim 2 comprising a substrate having an upper surface and a lower surface wherein:

said common terminal is formed on said lower surface;

10 the input means of each said protection unit is formed on said upper surface;

and said shielding diffusion extends at least partway into said substrate from at least one of said surfaces.

15 7 A semiconductor component as claimed in claim 2 wherein each of the further diodes has a single PN junction.

8 A semiconductor component as claimed in claim 2 wherein at least one, but not all, of the further diodes is a multi-junction diode and each of the other further diodes has
20 a single PN junction.

9 A semiconductor component as claimed in claim 2 wherein each of the further diodes is a multi-junction diode.